

SWBAT: define shielding and give an example

Jan 4-7:20 AM

Welcome!!!

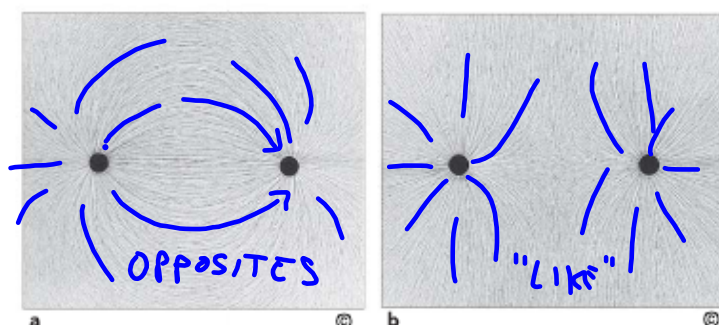
H. Leslie Grebe

- * Pick up:
 - slip of paper (for later)

CP: Notes homework

Opening Questions:

What can we tell about the charges in these 2 pictures?



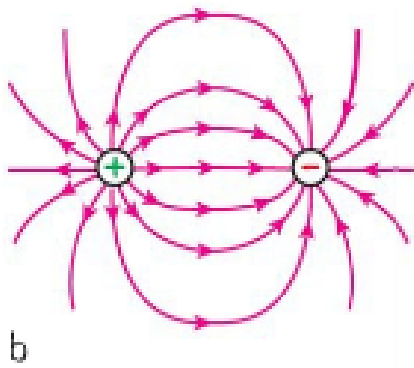
◀ FIGURE 33.5
Bits of fine thread suspended in an oil bath surrounding charged conductors line up end to end along the direction of the field. The photos illustrate field

Centering

Sep 7-7:04 AM

Big Idea from Friday:

Electric charges are surrounded by electric fields



"Rules" for E-field Lines:

① ARROWS GO FROM POSITIVE TO NEG.

② ARROWS GETTING CLOSER MEANS STRONGER

Feb 2-7:44 AM

Cell Phone Experiment!

Will it ring when it is wrapped in foil?

COVERED	WILL IT RING?		RESULT:
	YES	NO	
COMPLETELY SEALED	2	1	No ring
Half Covered	1	2	yes
Top half Covered	1	2	yes
3/4	1	2	yes
Covered	1	2	yes
in and open	3	0	Kinda
in / closed	0	3	NO, GAPS? = YES

Feb 18-6:46 AM

Pair up:

Why wouldn't the cell phone ring when it was covered and closed?

MOVE EASILY ← ATTRACT/REPEL
 Electrons Force
 ↑ ↑
 Conductor Electric Field
 FOIL SIGNAL

CLOSED → ELECTRONS MOVE
 UNTIL FORCES
 BALANCE OUT
 = NO SIGNAL INSIDE

Feb 18-6:46 AM

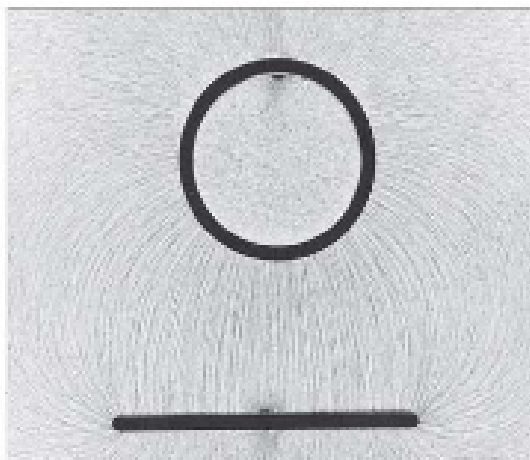
Big Idea of the Day:

Shielding:

A closed conductor shields the inside from outside electric fields.

or...

NO electric field inside a closed empty conductor!



Feb 18-6:47 AM

Coaxial Cable - what are the layers?

SIGNAL → COPPER WIRE — C
 WHITE PLASTIC — I
 ?? → FOIL/WIRE MESH — C
 .. BLACK RUBBER — I

Think on your own:

SHIELDING

Why do the makers of coaxial cable put a layer of foil in it?

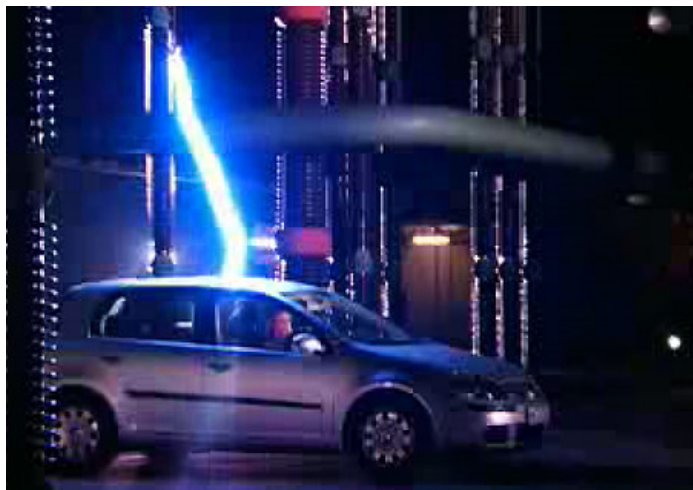
**KEEP OUTSIDE SIGNALS OUT
 KEEP INSIDE SIGNAL IN**

Feb 13-8:31 AM



It's NOT about the rubber tires.

Why are you safe inside a closed car struck by lightning?



Shielding inside a closed conductor: no electric field

What kind of electric field is inside an empty conductor? **None**

Feb 18-6:37 AM

Daily 3 Questions

- * Every day except test/project days
- * 3 Questions on the topics of the day
- * Main source of daily points
- * I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

CP Hmwk: Elevator or microwave question on handout

Friday - Notes w/ questions

You can't get your points if you don't have your NAME!!!

Name	Period
1.	
2.	
3.	

Sep 9-7:32 AM

1. Did the cell phone ring when it was completely covered and closed in foil?

NO

2. Describe the electric field inside a closed empty conductor.

NONE

3. Besides the cell phone, give another example of electrical shielding.

CABLE

CAR W/ LIGHTNING

PIC OF RING

Jan 3-7:48 AM